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Vol. 5, No. 1 Spring, 1966

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DEPARTMENT OF LANDS AND FORESTS

HON. A. KELSO ROBERTS, Q.C., MINISTER G.H.U. BAYLY, DEPUTY MINISTER.

ONTARIO
FISH AND WILDLIFE
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CONTENTS PAGE

A Dedication 2

Winter Angling for Sabaskong Crappies. 3
by K.J. Chambers

Some Edible Wild Plants of Ontario. 7
by George Love

The South Bay Fisheries Research Station. 15
by F.P. Maher

The Indian Concept of Property. 21
by Edward S. Rogers

THE COVER

A rainbow trout, fighting its way up a fish ladder, symbolizes the rousing forces of spring at Nicolston Dam on the Nottawasaga River at Alliston. Photographer Ted Jenkins also got around to Lindsay Forest District to catch this placid scene (Back Cover) on the waters near Burleigh Falls.

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How Can I Help?

Hundreds of agencies pledged to improving the world ask the public for support of their programs. Welfare groups, educational interests, health associations, safety agencies and peace movements are but a few. Government departments and commissions, too, depend on public acceptance of their programs.

Public support offered the Department of Lands and Forests, in the conservation of natural resources, has been increasing in recent years and has been most gratifying.

Like many other agencies, we are often at a loss when asked by individuals, "How can I help?" Sometimes, it is relatively easy to answer this question. Landowners can assist by practising wise land use; by maintaining habitat for the greatest variety of plants and animals possible; by doing stream improvement; by building a farm pond or establishing a marsh; or by fencing cattle out of woodlots or away from waterways.

On both public and private land, others can obtain permission to set out duck nesting boxes, build brush piles for cottontails, establish reefs in fishing areas, or improve deer yards. But not everyone has the means or opportunity to accomplish such tangible works. What can they do?

The most significant contribution these people can offer the Department is to become familiar with the problems of fish and wildlife management, and to understand what is involved in their solutions.

Unfortunately, most adults were taught, and many children are being taught today, that protection of wildlife is synonomous with conservation of wildlife. We were told that killing predators, stocking fish and game and controlling harvests "would ensure the preservation of the species". We did not learn (since it is harder to comprehend) that habitat destruction, on the land or in the water, will eliminate a species of game or fish no matter how many predators we kill, animals we stock, poachers we apprehend, or how low our bag and creel limits go.

How can you help? Learn about the importance of habitat to fish and game populations. A well informed public is our greatest asset.

A Dedication

This issue of *Ontario Fish and Wildlife Review* is dedicated to O.E. "Ott" Devitt who, until his retirement last November, was the Chairman of the *Review* Editorial Committee. Mr. Devitt, during his 14 years as the librarian of the Fish and Wildlife Library at Maple, undertook the chief editorial responsibilities for the *Review* since its inception in 1961, and also was instrumental in the publication of the intra-departmental series, "Fish and Wildlife Management Report", subsequently re-named "Resource Managment Report".

The editorial committee, which worked along with Mr. Devitt on past *Review* issues, have thoroughly missed his patient and deft guidance in surmounting the myriad details prior to the publication of this issue.

Our wish for "Ott" and Mrs. Devitt is – many years of happy retirement with ample time to pursue their widely varied interests.

The Editorial Committee.

G.C. Armstrong, Fisheries Section.
K.K. Irizawa, Wildlife Section.
J.D. Roseborough, Fisheries Section.
J.L. Tiller, Conservation Information Section.

WINTER ANGLING FOR SABASKONG CRAPPIES

by K.J. Chambers
Biologist, Game Fish and Hatcheries Section
(Photos by the Author)

At the turn of the century, the Lake of the Woods was known locally as "The greatest sturgeon pond in the world". This era was followed by an upsurge in the whitefish population and, subsequently, the establishment of an extensive and profitable commercial fishery. Road access came late to the Kenora area. With it developed a tourist trade which now comprises a major portion of the local economy. The Lake has since gained wide acclaim for its walleye, maskinonge and smallmouth bass sport fisheries.

The black crappie *(Pomoxis nigromaculatus)* over the past two decades has become an increasingly significant member of the Lake's fauna. Northwestern Ontario has been delineated as the northern limit of the crappie's range; its sporadic occurrence and poor growth in this region were accredited to adverse habitat and unsuitable climate. Whether or not its range has been extended is unknown, but it has strengthened its position in this area. Catch figures indicate that the crappie has become at least three times more available during the past decade.

The crappie (locally pronounced "craw-pee" and variously labelled the calico, strawberry or speckled bass) is associated with clear, calm waters. Winter anglers generally find them in depressions or holes in the shallow bays of medium to large lakes. The mean depth of these waters is approximately 20 feet; the fish are generally caught in 35 to 40 feet of water. They are angled with small hooks and small live minnows; few are taken on artificial lures.. In this region, it is only during the winter (January to March) and the spring (late May and June) that crappies are caught with consistent success.

What kind of fish is the black crappie? It is the largest of our panfish, often exceeding a pound in weight. Its deep body is somewhat flattened or laterally compressed. The "scoop" or depression immediately above the eyes is one of the major identifying features. The back is generally dark green with irregular mottling of green and iridescent blue over silver on the sides.

As with other species of the sunfish family, spawning occurs in late spring or early summer. The male prepares a nest and remains to guard the eggs and fry. The crappie is exceedingly prolific. Often its growth is restricted by crowding and competition for food. In Lake of the Woods, it has been found to be predominantly carnivorous, feeding primarily on young perch.

For a given body of water, the total poundage of crappies generally remains constant; however, the composition of year classes indicates wide variability in reproductive success. These fluctuations in the population composition may well hinge on the crappie's cannibalistic tendencies.

Crappies are abundant in many of the Kenora area waters; Blindfold Lake, Shoal Lake, Portage Bay, Blueberry Inlet and Snake Bay of Lake of Lake of the Woods are a few. During the winter, many of these waters are relatively inaccessible. The area which has recently become renowned for its crappie fishery is Sabaskong Bay.

Sabaskong lies in the southeast corner of Lake of the Woods and the aesthetic appeal of the Precambrian Shield is enhanced by its excellent angling record. The closest community is Nestor Falls, a hamlet which generally undergoes the winter dormancy of areas dependent on the touring public, even though there has been ice fishing here for years. Lake trout and northern pike will always hold a compelling influence over some anglers who are willing to reduce three feet of ice to a slush-filled hole.

In the past ten years, interest in, and catches of, crappies have increased. Promotion of the Sabaskong crappie grounds began after a local pilot discovered a very productive location. Good angling was experienced by most of those who reached this location by aircraft or snowmobile. Exceptionally good catches were experienced as early as 1957.

This part of Ontario, without regulations governing seasons and catches, is presently blessed with crappies that often exceed a pound in weight, sometimes two pounds. Residents of the adjoining State of Minnesota are keen winter anglers. Comparing our crappies with their own stock of one-half-pound fish, they amiably refer to Lake of the Woods crappies as "jumbos".

In the winter of 1963-64, an enterprising resort owner constructed a winter road to the Sabaskong crappie grounds in an effort to stimulate trade. Those who motored in to the grounds

A typical day's catch on Sabaskong Bay after the initial run has ended.

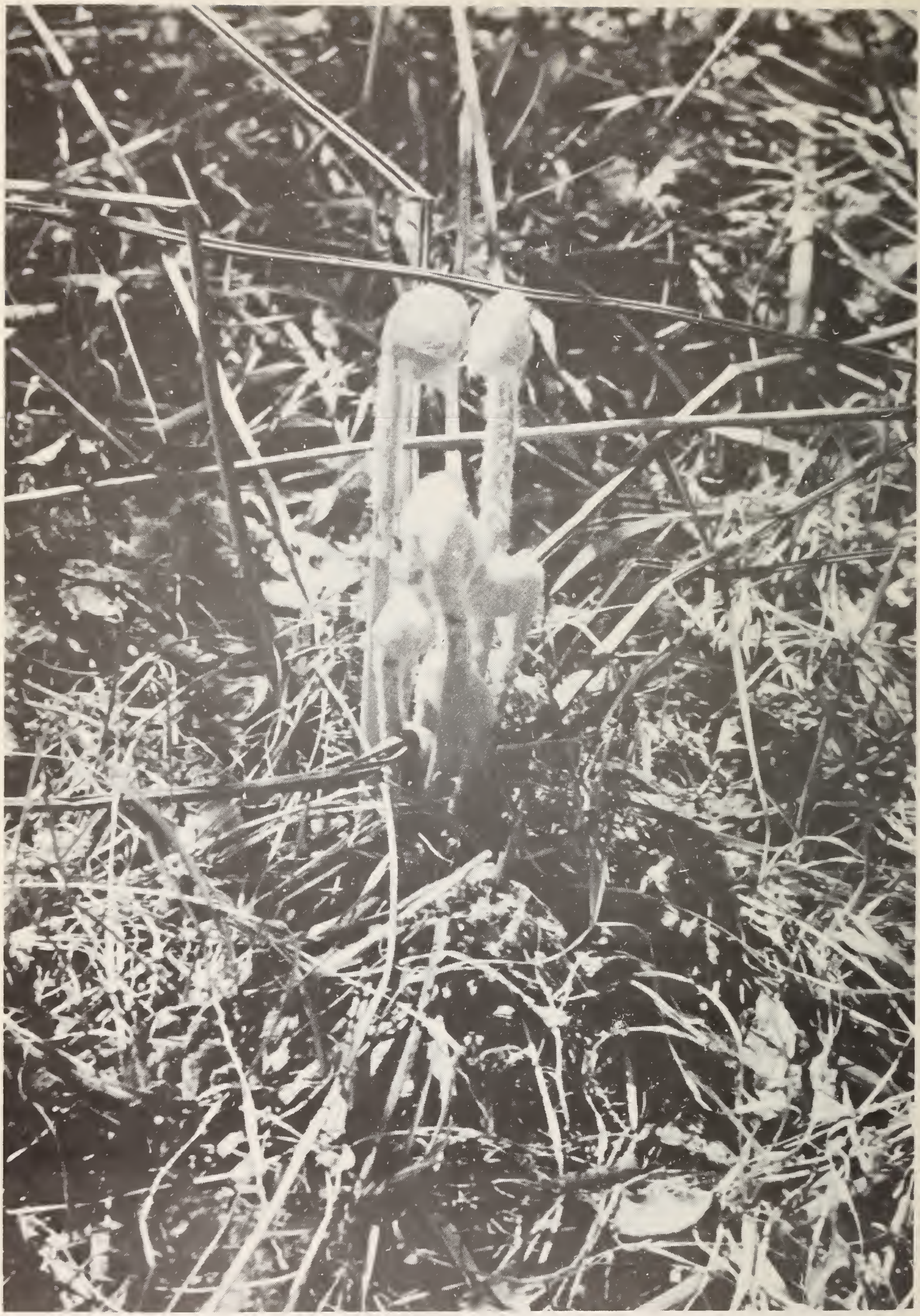
A "jumbo" crappie sometimes exceeds two pounds in Lake of the Woods.

were rewarded with fine catches. The word spread rapidly; suddenly, there was television and press coverage from as far away as Minneapolis. Headlines read "Crappies by the Ton for Anglers at Lake of the Woods". Suddenly, Nestor Falls enjoyed a small bonanza!

Angling was good. The Department creel census showed that for 1400 angler-hours during February (the peak period), the average catch was 1.7 crappies per man-hour fished. On the best recorded day, crappies were caught at the rate of 3.4 per man-hour. Most fishermen went home well satisfied despite the sub-zero weather.

Crappies taken by the angler are generally five years or older. Between the ages of five and nine, Lake of the Woods crappies are subject to a mortality rate of 65 per cent. That is, only 35 per cent of the five-year-olds live to become six years old, and so on. The primary cause is, simply, natural mortality. As with the human population, death is almost a certainty.

Since we cannot control natural mortality, we must try to utilize the existing crop. This is the most sound management practice for the black crappie of Sabaskong Bay.



Ostrich Fern at the edible, crozier stage. Photo by H.K. Campbell.

SOME EDIBLE WILD PLANTS OF ONTARIO

by George Love
Conservation Officer, Lake Simcoe Forest District

During the past few years, there has been a tremendous increase in the numbers of campers, hikers, hunters and anglers roaming Ontario's outdoors. Along with this upsurge in outdoor activity, an interest in edible wild plants is developing. This interest is due to the people's desire to know more about their environment and the possibilities of sustaining themselves when lost.

There are several hundred kinds of edible plants in Ontario, and it would be impractical to attempt to list them all. This article is to familiarize the "average outdoorsman" with some of the common edible plants which can be used for home consumption, on camping trips, as emergency food or just for the sake of experience. Plants which might be used as everyday vegetables, and those which would serve as emergency food items, are included.

No person should eat any plant unless he is absolutely sure of its identification. Since the common names of plants vary in different localities, and confusion may result, the Latin names of the plants mentioned are provided in a list at the end of this article. An Ontario Department of Agriculture Publication No. 505 entitled "Ontario Weeds" gives excellent descriptions and illustrations of many of these plants. Descriptions of aquatic plants may be found in the booklet, "Aquatic Plants for Fish and Wildlife", published by the Royal Botanical Gardens in Hamilton. The Department of Lands and Forests' "The Forest Trees of Ontario" describes the tree species referred to here.

The young foliage of plants, such as lamb's quarters, pigweed, chickweed, shepherd's purse, mustard, fireweed, purslane, sheep sorrel, nettles, beech and common plantain, may be used as cooked potherbs. These do not necessarily need a change of water after boiling, although it helps to remove any bitterness. The tender leaves of chickory, dandelion, burdock, yellow rocket, wild onions (leek), sow thistle, skunk cabbage and marsh marigold are equally good as cooked potherbs; but, when cooking these, one must change the boiling water at least twice to remove traces of bitterness.

Extreme caution must be exercised in gathering the skunk cabbage not to mistake it for the deadly poisonous Indian poke which grows in similar habitat. Again, considerable caution must be taken in collecting marsh marigold as a number of poisonous plants grow in the same locations. Since raw marsh marigolds are poisonous, one should pick only the new leaves and thoroughly boil them for an hour or more, changing the water twice while boiling.

During the early part of the season, the young shoots of a number of plants may be prepared and used like asparagus. Pasture brake (bracken), ostrich fern, wild onions, thistle (young stems peeled) yellow goat's beard and burdock (young stems peeled) are some examples. Young shoots, six to eight inches long, should be cooked immediately after cutting and removing any hair and scales. Ferns, past the fiddlehead stage, should not be eaten. Care must be taken not to confuse them with poison hemlock.

Many plants will make delicious salads when prepared with dressings or oils. Some of these include Indian cucumber, mustard (young leaves), wild rose petals, clover (young herbage), ox-eye daisy (young leaves), burdock (pith of young stems), the blanched young leaves of chickory and dandelion, and the young stems of pasture brake.

The cattail, which is possibly the most common plant in shallow marshlands, can serve as food throughout the entire season. The rootstalks can be eaten from fall to spring, either raw or cooked. The pithy core at the junction of the rootstalk and the sprouting stem can be eaten boiled or roasted. Their young shoots in spring can be used as a vegetable, pickled or eaten raw after being peeled. The young, green-coloured, flowering spikes (before the yellow pollen develops) are eaten raw, boiled or steamed like cob-corn, leaving only the hard centre. The pollen and ground rootstalk can be used as flour.

A substitute for potatoes cannot only be provided by cattail but also by the tubers of such aquatic plants as bur-reed, pondweed and arrowhead. The tubers of these are found at the end of long runners some distance from the parent plant. The rootstalk of the yellow water lily can also be substituted for the potato, although some claim it is objectionable in flavour.

The bulrush is another plant which is a year-round source of food. The rootstalk is available from fall to spring. The young leading tip from which next year's shoot will emerge can be eaten in the autumn when it is crisp and sweet. The seeds, pollen and dried root can be ground into flour.

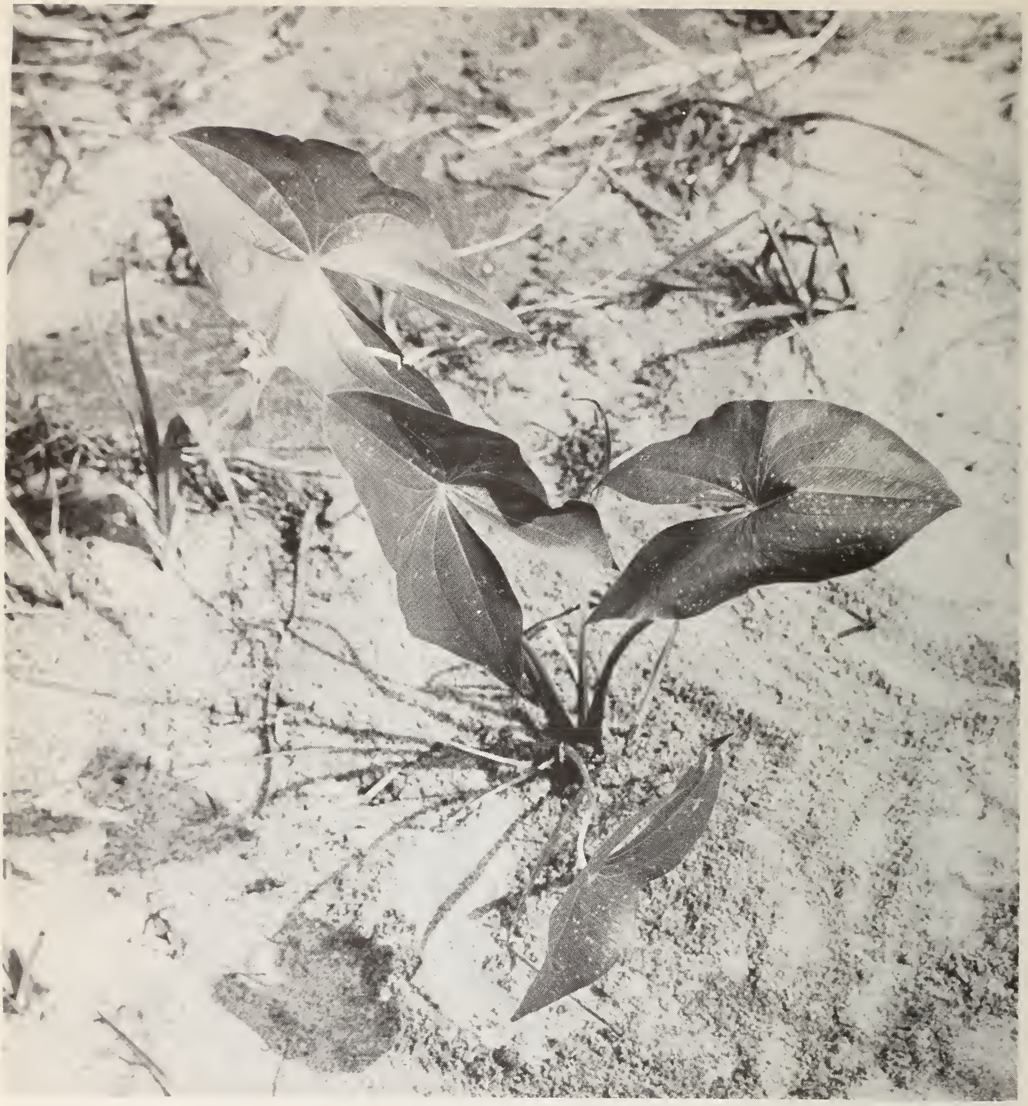
From fall to early spring, the taproots of the evening primrose and goat's beard (salsify or oyster plant) provide excellent root vegetables.

Another very common plant with many edible parts is the milkweed. Not only can young milkweed shoots be cooked as potherbs (with two changes of water while boiling) but also the young flower cluster (while still in bud) and the immature, firm seed pods can be cooked in a similar manner and served. Furthermore, the seed pods can be preserved, by boiling in salted water with a pinch of soda, and canned as any other vegetable. The milkweed should not be eaten raw as it may be toxic in this state.

These plants are the preferred emergency foods; however, they may not always be available. For this reason, the parts of a number of additional plants, which can be eaten when the need is urgent, are listed. Pines – inner bark and twigs; larch – young shoots; spruces – inner bark and young twigs; balsam – inner bark and bubbles of pitch near the surface of the outer bark; hemlock – inner bark and young twigs; white cedar – twigs as tea and pith of young shoots as a soup; beech – inner bark and leaves; willow – inner bark; poplar – inner bark; alder – inner bark and buds; birch – inner bark and twigs, dried leaves of yellow birch as tea; elm – inner bark; maple – inner bark and boiled seeds; basswood – inner bark and buds. The inner bark (cambium) of these trees is naturally the most nutritious during the spring and early summer when there is a strong flow of sap. A kind of flour can be produced by drying the inner bark and pounding it into a fine powder.

The nuts from trees, such as walnut,

Cattail, a year-round source of food, is found in abundance in most marshes. Photo by R. Muckleston.



Arrowhead. Its edible tubers are found several feet from the parent plant. Photo by R. Muckleston.

butternut, hickory and beech, can be eaten as emergency foods or as regular food items. After the acorns from the oak trees are gathered, the hulls should be removed and the kernels allowed to dry. When dried, they should be boiled for two hours and then soaked in cold water to remove the tannin which gives them a bitter taste. They can then be ground into a paste which, when dried, can be pounded into flour.

Several lichens can be eaten as emergency foods. Rock tripe and Iceland moss can be made into a soup by steeping them in a dilute solution of soda and water to remove the purgative elements. Two other lichens, tree lungwort and reindeer moss, can be eaten as mucilaginous soup, while reindeer moss can also be ground up and used as flour.

There are a considerable number of edible mushrooms which can serve as food. However, since there are many

Reindeer Moss will sustain life in an emergency. Photo by H.K. Campbell.

Yellow Waterlily has edible tubers, fall to sping. Photo by R.V. Whelan.

Evening Primrose. The tap root has an excellent flavour if collected in the fall or early spring. Photo by H.K. Campbell.

excellent publications about these plants, they are not dealt with here.

There are numerous other plants which can be used as pureés, soups, breakfast cereals, breadstuffs, relishes, pickles, seasonings, drinks, rennets, sugars, dried and preserved fruits, jellies, marmalades, candies, oils, butter, chewing gum, drugs, medicines, dyes, and chocolate and coffee substitutes. The most common plant materials (mixed together or used separately) as a coffee substitute are the sliced, roasted and ground roots of dandelion and chickory.

If a person takes sufficient time to study the identifying features of these common edible plants until he is sure he can distinguish them from toxic species, then there will be no need to fear using them as a variation in his everyday diet. As with any food, the preparation is important to assure a tasty meal and should be done in the same manner as for any other vegetable of a similar kind. In cooking any plant with milky juice or strong and unpleasant flavour, the water must be changed twice.

Many plants are considered merely as weeds, and it does not occur to us that they might be edible. However, plants such as these sustained many North American Indians prior to the introduction of vegetables from Europe. A knowledge of plants can make outdoor activities in Ontario a more enjoyable and satisfying experience.

NAMES OF PLANTS MENTIONED IN THE ARTICLE

Alder - *Alnus* spp.
Arrowhead - *Sagittaria* spp.
Balsam - *Abies balsamea*
Basswood - *Tilia americana*
Beech - *Fagus grandifolia*
Birch - *Betula* spp.
Bulrush - *Scirpus validus* and *acutus*
Bur-reed - *Sparganium* spp.
Butternut - *Juglans cinerea*
Cattail - *Typha latifolia*
Chickory - *Cichorium intybus*
Chickweed - *Stellaria media*
Clover - *Trifolium* spp.
Common plantain - *Plantago major*
Dandelion - *Taraxacum officinale*
Elm - *Ulmus* spp.
Evening primrose - *Oenothera biennis*
Fireweed - *Epilobium angustifolium*
Hemlock - *Tsuga canadensis*
Hickory - *Carya ovata*
Iceland moss - *Cetraria icelandica*
Indian cucumber - *Medeola virginiana*
Indian poke - *Veratum viride*
Lamb's quarters - *Chenopodium album*
Larch - *Larix laricina*
Maple - *Acer* spp.
Marsh marigold - *Caltha palustris*
Milkweed - *Asclepias syriaca*
Mustard - *Brassica* spp.
Nettles - *Urtica* spp.
Oak - *Quercus* spp.
Ostrich fern - *Pteretis pensylvanica*
Ox-eye daisy - *Chrysanthemum leucanthemum*
Pasture brake - *Pteridium aquilinum*
Pigweed - *Amaranthus* spp.
Pines - *Pinus* spp.
Pondweed - *Potamogeton natans*
Poplar - *Populus* spp.
Purslane - *Portulaca oleracea*
Reindeer moss - *Cladonia rangiferina*
Rock tripe - *Umbilicaria* spp.
Sheep sorrel - *Rumex acetosella*
Shepherd's purse - *Capsella bursa-pastoris*
Skunk cabbage - *Symplocarpus foetidus*
Sow thistle - *Sonchus* spp.
Spruce - *Picea* spp.
Thistle - *Carduus* spp.
  - *Cirsium* spp.
  - *Onopordum acanthium*
Tree lungwort - *Sticta* spp.
Walnut - *Juglans nigra*
White cedar - *Thuja occidentalis*
Wild onions - *Allium* spp.
Wild rose - *Rosa* spp.
Willow - *Salix* spp.
Yellow goat's beard - *Tragopogon* spp.
Yellow rocket - *Barbarea vulgaris*
Yellow waterlily - *Nuphar* spp.

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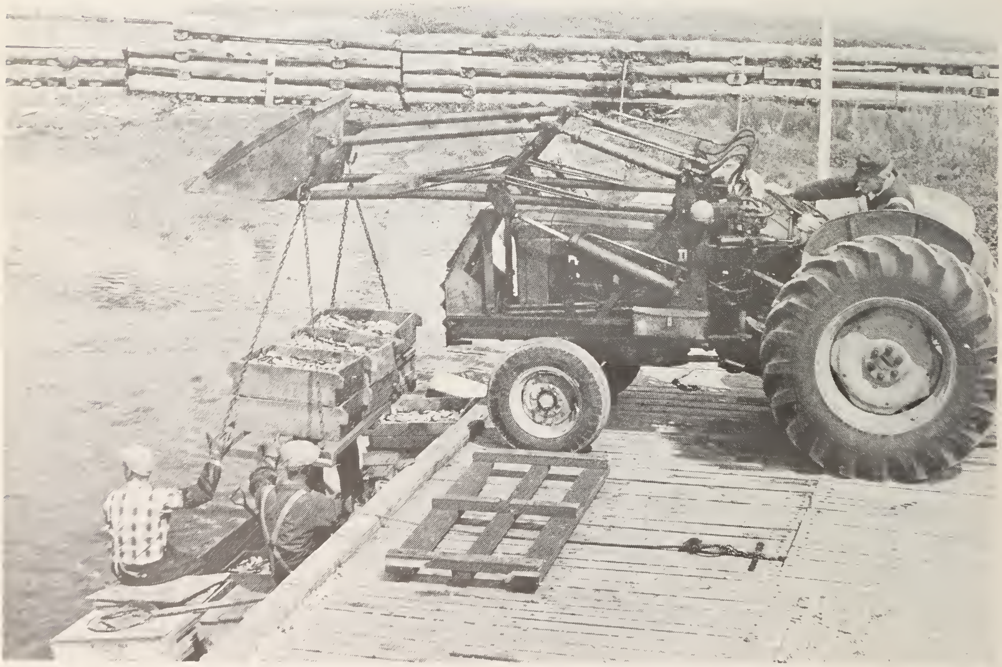
Boat's view of Fisheries Research Station at South Bay, Manitoulin Island.



Unloading pound net catch (mostly alewife) at South Bay.

THE SOUTH BAY FISHERIES RESEARCH STATION

by F.P. Maher
Research Supervisor, South Bay Fisheries Research Station
(Photos by the Author)

Recent changes in the Great Lakes fisheries are the cause of much concern to both sport and commercial fishermen at the present time. Pollution has been blamed largely for the decline of some species especially in Lake Ontario and Lake Erie. The invasion and spread of the sea lamprey has led to the virtual disappearance of lake trout in all of the Great Lakes, except Lake Superior where the presence of lake trout is due to lamprey control measures combined with lake trout stocking. The spread of new species of fish through the Great Lakes, such as smelt and alewife, has complicated the situation.

It is easy to speculate and to cite one factor or another as being responsible for the decline of some species in certain areas, but it is quite another thing to produce facts to support one's views. Waters as large as any of the Great Lakes present extensive problems in conducting investigations, and it is not easy to obtain accurate and meaningful answers. A large staff of biologists, technicians and fishermen, with boats seaworthy enough to work on huge bodies of water and with equipment including nets and scientific gear, are required to carry out a comprehensive research program.

The fisheries reasearch station on Lake Huron at South Bay, begun in the spring of 1947, was the first permanent research centre on the Great Lakes established by the Department of Lands and Forests. Similar stations were subsequently established on Lakes Ontario and Erie.

The decline of lake trout in Lake Huron had seriously reduced an important sport and commercial fishery during the 1940's. There was much controversy whether the fish were disappearing because of the sea lamprey, the effect of smelt, or fishing pressure by sport and commerical fishermen, removing desirable species and leaving undesirable species virtually untouched.

South Bay, on Manitoulin Island, was selected as the site for the Station since the 18-mile-long bay had all of the important species of the main lake, and it would be easier to study because of its much smaller size and enclosed nature. Work, begun in 1947, has continued without interruption since that time. The Station has grown over the years, and it is now a major fisheries research centre, with a permanent staff of biologists, fishermen and technicians carrying on a year-round program.

The Station proved its worth very quickly by showing that the sea lamprey was responsible for the decline of the lake trout population. South Bay was stocked heavily with lake trout for several years, and the fate of each stocking was followed closely by use of experimental fishing gear. When lake trout reached 18 inches in length, lamprey scars began to appear on them. By the time they reached 20 inches in length, few had survived the attacks.

Important work was also initiated to

Left: pound net crew load fish boxes. Right: tagging perch and whitefish.

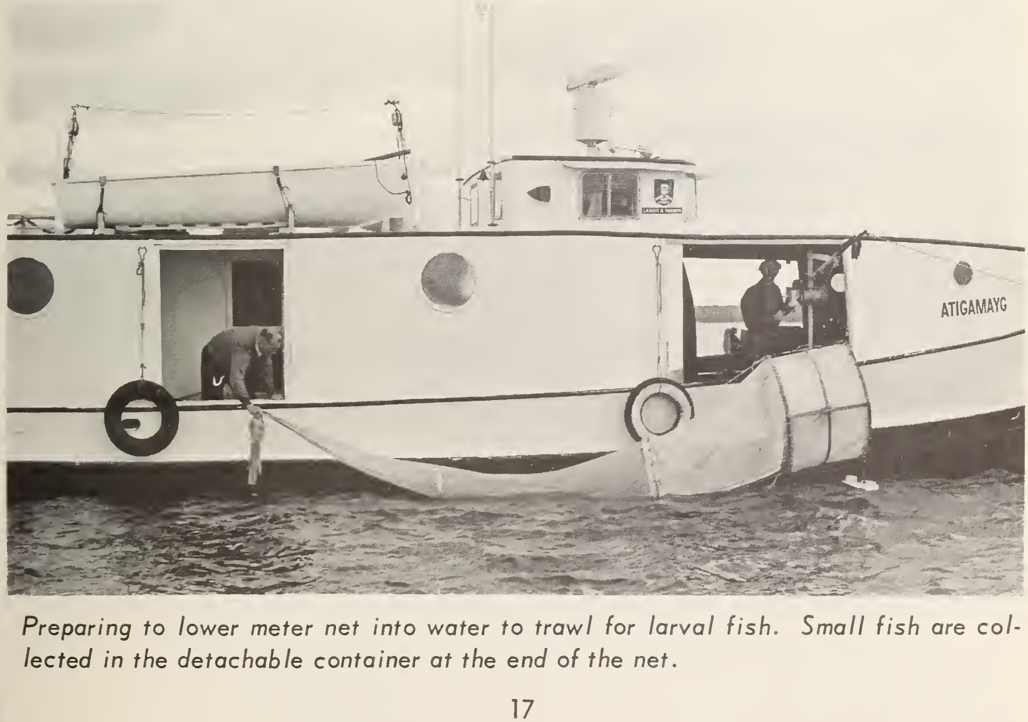
determine the causes of wide fluctuations in the abundance of smallmouth bass from year to year. Studies showed that unusually cold summers produced low numbers of young bass and that warmer summers produced large populations.

In addition to these major discoveries, the Station has kept an accurate record of the species of fish and their relative numbers in South Bay from year to year. The decline of lake trout and lake herring was well documented, as was the rise in abundance of alewife. A careful record is being kept of sea lamprey and the number of fresh and healed lamprey wounds on fish. From this, some measure of the relative abundance of sea lamprey from year to year is obtained. This information will be invaluable in assessing lamprey control measures in Lake Huron when chemical treatment of lamprey spawning streams begins.

South Bay is the centre of most of the work, although experimental fishing is being carried out in Georgian Bay, the North Channel and other waters. In addition, the commercial catch for all of Lake Huron is sampled so that the status of the fishery is known, and estimates can be made of fish abundance in later years.

A visitor to the Station, during the fishing season from May to the end of November, would be impressed by the variety of activities. The research vessel, Atigamayg, leaves each working day with its crew of scientists and fishermen to carry out a program which may differ from day to day. It may be pick-

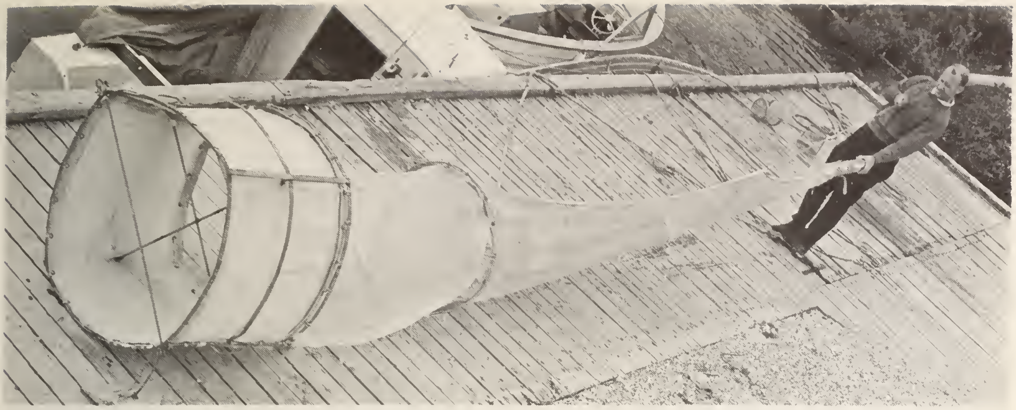
Close view of perch tagging. East Indian student injects tetracycline.



Preparing to lower meter net into water to trawl for larval fish. Small fish are collected in the detachable container at the end of the net.

Senior Technician Jim Smith prepares to lower bathythermograph to obtain a record of water temperatures from the surface to the bottom of the lake.

Pound net crew, preparing to lift net.



Dr. D.J. Faber, in charge of larval fish trawling, with meter net on dock.

ing up a gill net set the day before, or towing different kinds of sampling gear through the waters of the bay. With the vessel's underwater television camera, the scientists can study fish movements and lake bottom conditions, while the presence of schools of fish can be detected by sensitive echo sounders. At the same time, the research vessel, Wendigo, may be bringing in the catch from the pound nets or hauling one of the larger fish trawls. Smaller craft come and go on assorted missions, ranging from creel census of the sport fishery to taking water temperatures or water samples for chemical analysis.

Returning vessels bring in fish catches, taken from the nets, to the laboratory. The total catch is counted and weighed; subsamples are taken for a more detailed examination. Details of each catch are recorded. Each fish is weighed; its length is measured; scale samples are removed for age studies; stomach contents are analyzed; tag numbers are recorded; and any other information of interest is noted. All of this information is transferred to punched cards, suitable for use in sorters and computors.

Elsewhere at the Station, staff members are employed in separating and classifying minute plant and animal matter (plankton) from water samples, identifying larval fishes, examining fish scales under high magnification for age determination, or carrying out chemical analyses of water.

One of the mysteries of fisheries management is why some populations of fishes vary so greatly in abundance from year to year. As already noted, it has been found that temperature plays an important part in determining the size of bass populations in South Bay, but no precise relationship has as yet been demonstrated for whitefish in Lake Huron. An attempt is being made to follow young whitefish from the time they hatch until the time they are large enough to be caught in commercial fishermen's nets. The aim is to identify the factors causing mortality of young whitefish so that remedial measures may be taken.

Long tapering nets, made of fine material, resembling a wind sock at an airfield, are towed in various areas of the lake to collect young whitefish and other species which might be present at the same time. These nets are about one yard wide at the mouth and can only catch small, slow-moving fish. When the small whitefish are able to outswim this so-called meter net, larger trawls are used. The trawls are wide-mouthed nets which are towed through the water at any depth from the surface to the bottom of the lake. Since trawls are larger than meter nets and are towed more rapidly, they catch small fish and much larger fish as well. By employing both kinds of nets, the relationships of the different species of fish can be investigated.

It is important in fisheries research to determine the age of the fish being studied. By this means, the rate of growth of the fish and the success of yearly spawning can be followed. To check the validity of age determinations, fish caught in the pound nets and trawls are tagged with numbered plastic discs. When these fish are recovered in later netting operations, the scale samples and sizes of the fish are compared with similar information collected when the fish were first tagged. As another check, fish are hypodermically injected with a chemical called tetracycline. This enters the scales of the fish, leaving a mark on them at the time the fish was injected. When the fish is caught at a later date, and a scale sample is examined under ultra-violet light, the mark made by the tetracycline at the time to tagging fluoresces, allowing precise age determination to be made.

Fish tagging at the pound nets and trap nets is also carried out to study the movement of fish and to give information from which population estimates can be made. This work is most important for the guidance of those regulating the fishery. It provides an index of the amount of fishing pressure different populations can stand. Tagging work has been carried out on many species of fish but has recently been concentrated on whitefish and perch.

Anglers fishing in South Bay can except to be interviewed by a member of the Station staff conducting creel census. As many creels as possible are examined and data are recorded, such as the number of anglers fishing, the time taken to catch the fish, and where and when the fish are caught. This information is used to assess the state of the sport fishery, and to compare the abundance of fish from year to year.

A highlight of the current program is the introduction of a new species of fish. Aimed at benefitting both sport and commercial fishermen, kokanee salmon have been planted in South Bay, as well as other areas in Lake Huron and Lake Ontario, since the fall of 1964. Trawls are being used to follow the progress of the kokanee and to learn as much as possible about the predator-prey relationships of these fish. Splake, the lake trout-brook trout hybrid, are also being planted in South Bay and in Lake Huron to provide a kind of trout which will live in the deep waters of Lake Huron and spawn at an early age before becoming vulnerable to lamprey predation.

Apart from the research being carried out at the South Bay Station, an important function is to train future biologists in fisheries work. Every year, student biologists from many universities work with staff scientists and gain valuable experience. Facilities of the station are also made available to visiting scientists who may wish to undertake fisheries investigations.

Most research at South Bay and similar stations is of a long-term nature. Many years of sampling and study are required before results can be observed. It is only through painstaking work over the years, that the necessary knowledge of our fisheries can be gained for the sound management of our Great Lakes fisheries resources.

THE INDIAN CONCEPT OF PROPERTY

*by Dr. Edward S. Rogers**
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Have you heard the expression, "Indian-giver"? It's not used in a kindly fashion. It implies that the person who has given will take back his gift. But is it proper to characterize the Indian in this manner? Did he operate in this fashion? The answer is quite simple. He did not.

His concept of property was different in many ways from ours. We are exceedingly possessive, with a strong feeling of private ownership. Many of our sayings reveal this, such as "Don't look a gift horse in the mouth", and "Finders keepers, losers weepers". We're noted for amassing property and goods for our own personal use and control.

But the Indian in most parts of Canada was not a materialist, and there was good reason for this, given the way of life he pursued in the past within his harsh environment. The Indian had to depend upon the resources found within the area for everything---food, clothing, shelter and equipment. Resources were not numerous and therefore the Indian had to be frequently on the move in search of them. Accordingly, he couldn't amass very many possessions, since he would be unable to move them. He had limited transportation devices at his disposal and he always had to travel light.

The Indian was generous, not possessive, and he expected others to be the same. This was a basic premise of his philosophy. From his point of view, no one should go in want and those who had, gave to those who did not have. The day might come when the giver had little and was in danger of starving to death. Then others with more would come to his aid. He knew this, and it allowed him to maintain hope for the future.

A good hunter with a thrifty wife might be able to produce a slight surplus. As with us, he would be much admired, not because of his extra wealth but for his generosity in giving to others less fortunate. The Indian was not a miser.

Sometime ago, my wife and I spent a year with the Mistassini Indians of south central Quebec to study their customs and language. We lived from late August until the following June with one small hunting group, under the leadership of Alfie Matoush, at their ancestral home nearly two hundred miles north of the Lake Mistassini trading posts. Whenever they secured game, whether caribou or fish, we were always provided with a share, and fortunately so, since we didn't have sufficient food with us. When purchasing supplies the previous fall, we had not realized how much food was necessary to survive during the long, cold winter. Happily for us, the Indians were generous.

We mightn't have been so lucky if we hadn't learned from an early mistake. Shortly after we left the trading posts

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Indian fire fighters give demonstration of hose laying at Racine Lake, Chapleau Forest District. Photo by Max Toms.

at the south end of Lake Mistassini, we were camped on the shores of the Temiscamie River. Here, one evening, a young Indian lad joined us. He spoke a little English and so acted as our interpreter. Alfie Matoush, the leader of the group, asked us through him if we enjoyed rabbits and grouse, since they shared amongst themselves and would share with us. We said we did. Then we made our mistake. We tried to explain that we didn't wish to be a burden since they had a difficult life and would need all the food they could secure. Because of this, we had brought with us what we felt we would need for the winter. Alfie was highly incensed and said nothing more. His pride had been hurt. We then realized that one always shared what one had, and Alfie couldn't understand our attitude. For sometime we received no share of the game they took.

One day, weeks later, my wife remarked how good their stew smelled. At once the situation changed. Immediately they sent over a share, and from that day on we had what they had.

Within an Indian encampment, not only is the meat of caribou moose and other game shared but also goods are freely borrowed amongst the members. Borrowing follows rules, as does any

Indians of all ages enjoy conservation movies shown by Conservation Officer at Ogoki, Geraldton Forest District. Photo by R. Muckleston.

behaviour in any society. Although an individual may borrow, he is not necessarily expected to return the item. When the owner needs it, he will come and get it. This holds true for a variety of articles used in their daily lives. It is this behaviour that I believe has given rise to the term, "Indian-giver". Those who coined it, didn't appreciate or understand the Indian's concept of property.

Set rules also apply to the sharing of goods. It is the leader's prerogative to distribute food. This was brought out clearly late that winter, when a plane arrived at camp on one of the infrequent visits we had during our field work. The pilot had a gift of food for us. We now knew something of the rules of the game and felt we should distribute this to all members of the group. It so happened that Alfie was away that day tending his traps. We gave no thought to this and simply divided the food among the member families. Later, Alfie returned to camp and was extremely annoyed at our action. Although he said nothing to us we were ostracised by him and knew something was wrong. Later we learned the reason. We had in effect unsurped his position as leader by having divided the food in his absence. We should have waited until his return, and then presented it to him for distribution.

There is another feature to the Indian concept of property. In the old days, all products of the environment were free goods. No one had a right to stop another from taking resources wherever he found them and whenever he needed them. This practice no doubt contributed greatly to the survival of the Indian hunters of Eastern Canada. There were no individual property rights to the land or the goods found on the land as we know them in our society.

Today, the Indians are in contact with Euro-Canadians, who have different ideas. Unfortunately this leads to confusion in the minds of the Indians as to what constitutes proper views towards property.

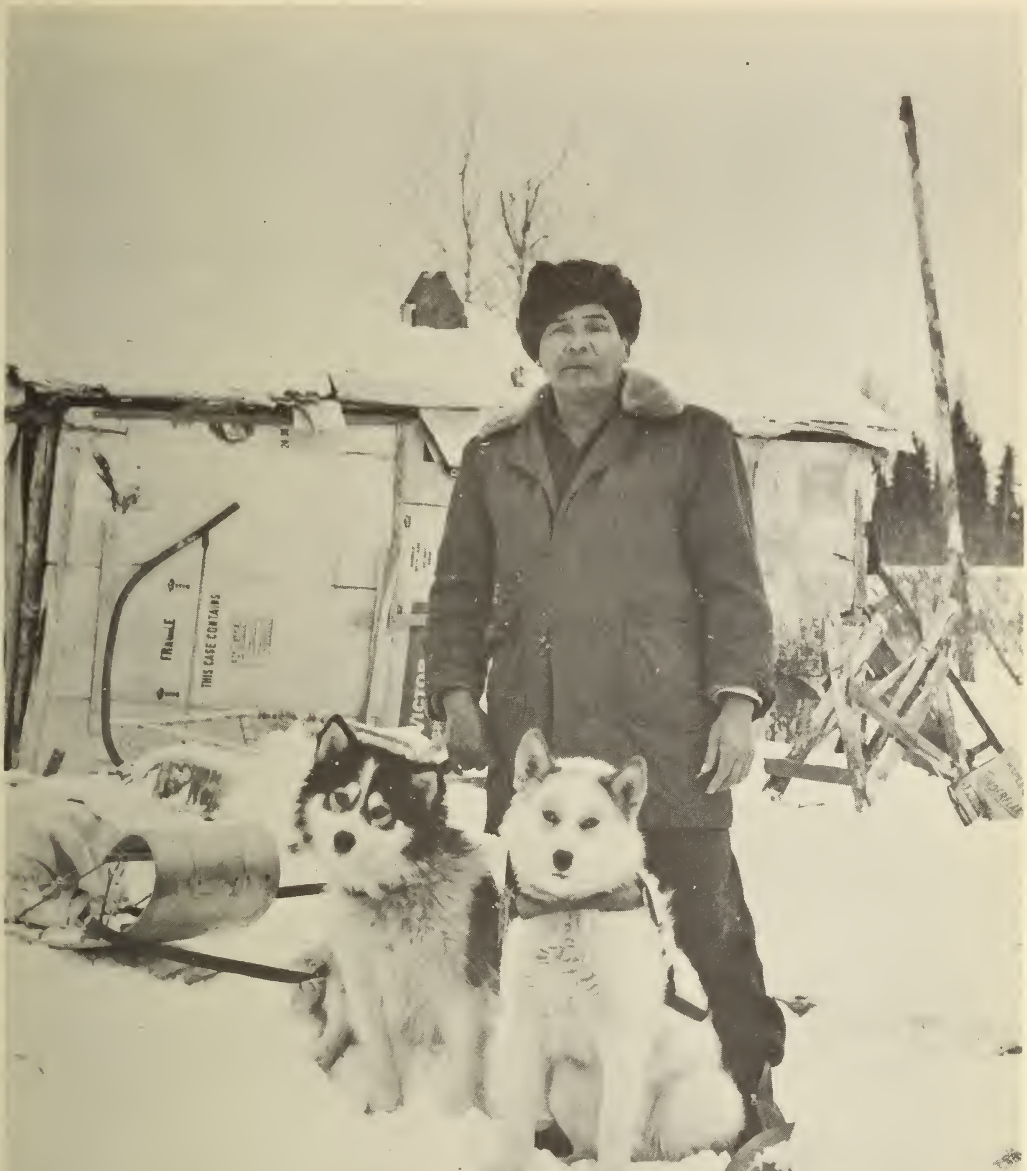
For instance, they often look at articles they receive from *our* world in the same way that we do. Food they get from the trading companies in exchange for furs is not shared as is the meat of game animals. If a man is in need, he will be supplied. But it is expected that as soon as the group returns to the trading post the individual who lent will be compensated in full.

Furthermore, if a man borrows a canoe to go fishing, he is not expected to give anything in return as long as he uses the fish for domestic consumption. However, if he sells them to a fish-buyer, he must give 10% to the owner of the canoe. Hence, diverse views on property exist today among the Indians, and they are developing some concepts closer to our own. As a result, confusion exists.

When doing field work among the the Round Lake Ojibwa of northern Ontario, I employed Henry Kakakiash and rented his canoe to go on a trip. On our return, I paid Henry for his time and services, and thought that was the end of the matter. But no, it wasn't. Only a few hours later his sister-in-law came charging in demanding payment for the canoe. I was completely puzzled, and had to get an interpreter to clarify the matter. It turned out to be a problem of inheritance. Traditionally, when a man died his possessions passed to a male kinsman, either an adult son, or if no son, to a brother. And this was the way Henry viewed the canoe. When his brother had died he had assumed ownership of it. But at the time of his brother's death the government told Henry's sister-in-law that all her husband's possessions became hers. Now, she had allowed Henry to have the canoe for his own personal use, but when it came to renting it, this was a different matter. Henry had received money for the canoe. This was a commercial transaction so she felt she should have her share. Henry didn't see it this way at all. Accordingly to offend no one, I had to pay her as well for the canoe.

Some Indians have acquired our idea of the prestige value of material goods. One Indian I once knew had purchased a bicycle, although the sandy paths in his village were really too rough for riding. Each day, he took it to the local store, bought his groceries, walked home with them, returned to the store for his bicycle and pushed it home. Was that really odd? The bicycle, though useless for transportation, was a symbol of prestige like our expensive cars.

The Indian's concept of property fitted him well for survival. Today, the Euro-Canadian is encroaching more and more on the Indian and disrupting his traditional way of life. I believe we must accept responsibility for much of the confusion and misunderstanding in the Indian's mind.



Indian trapper with sleigh dogs at Hornepayne, Kapuskasing Forest District. Photo by Ted Jenkins.